OROPHARYNGEAL CANCER

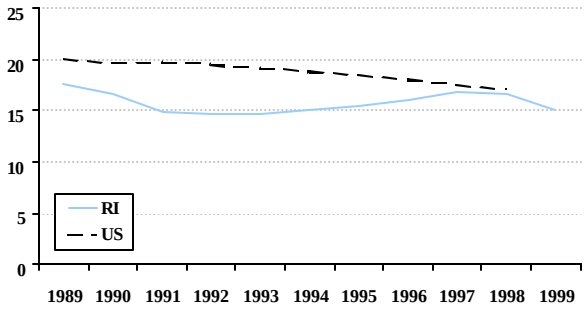
Oropharyngeal cancer is a type of head and neck cancer; it originates in the oropharynx, which is the middle part of the pharynx. The soft palate (or back part of the mouth), the base of the tongue, and the tonsils make up the region referred to as the oropharynx. (NCI summaries)

Oropharyngeal cancers are not among the most prevalent cancers in the state (and the nation), but they are significant for cancer control efforts, because most tumors of the oral cavity and pharynx are considered preventable. Oropharyngeal cancers accounted for 2% of all newly diagnosed cancers in 1997-2001, with an annual average of 73 male and 41 female newly diagnosed cases in each of the five years 1997-2001. Oropharyngeal cancers accounted for about 1% of all cancer deaths in 1996-2000, with an annual average of 16 male and 13 female deaths in each of the five years 1996-2000. In Rhode Island, approximately 730 people alive today were diagnosed with oropharyngeal cancer at some point in the past 25 years (446 males and 283 females in 2000). (RICR)

Cancer Rates

Figure 11-1. Male oropharyngeal cancer incidence by year

Average annual invasive oral cavity cancer incidence rates** by year among males, RI and US, 1987-2001***.*



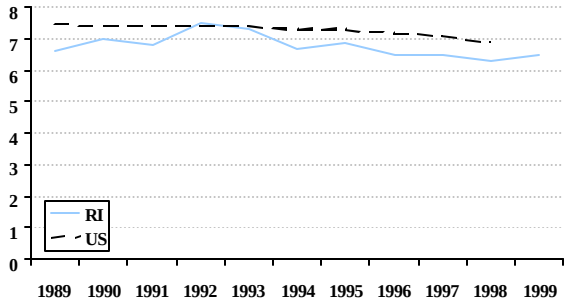
* Invasive includes the following stages of disease at diagnosis: local, regional, distant, and unknown.
** Rates are age-adjusted to the year 2000 US standard population, expressed as cases per 100,000 population.
*** Rates are five-year moving averages.
Source: RICR, HEALTH; SEER Public-Use 1973-2000 Data; calculated with *SEER*Stat*.

The age-adjusted incidence of invasive oropharyngeal cancer among RI males of all races declined from 17.6 per 100,000 in 1989 to 14.7 per 100,000 in 1992, increased to 16.7 per 100,000 in 1998, then decreased to 15.1 in 1999 (based on five-year moving averages). In contrast, the age-adjusted incidence of invasive oropharyngeal cancer among US males of all races decreased from 20.1 per 100,000 in 1989 to 17.2 per 100,000 in 1998 (based on five-year moving averages).

[Note: Separate graphs for males and females may not have the same y-axis scale.]

Figure 11-2. Female oropharyngeal cancer incidence by year

Average annual invasive oral cavity cancer incidence rates** by year among females, RI and US, 1987-2001***.*



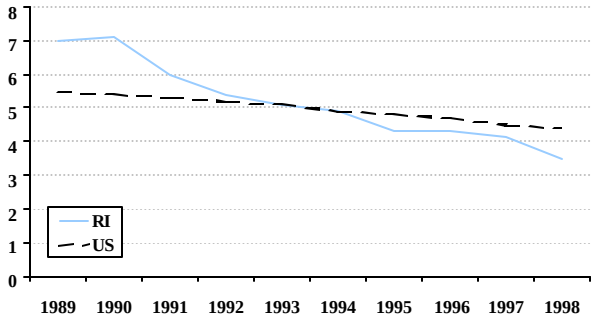
* Invasive includes the following stages of disease at diagnosis: local, regional, distant, and unknown.
** Rates are age-adjusted to the year 2000 US standard population, expressed as cases per 100,000 population.
*** Rates are five-year moving averages.
Source: RICR, HEALTH; SEER Public-Use 1973-2000 Data; calculated with *SEER*Stat*.

The age-adjusted incidence of invasive oropharyngeal cancer among RI females of all races varied from 7.5 per 100,000 in 1992 to 6.5 per 100,000 in 1999 (based on five-year moving averages). This may suggest a decline in oropharyngeal cancer incidence among RI females. The age-adjusted incidence of invasive oropharyngeal cancer among US females of all races declined from 7.5 cases per 100,000 in 1989 to 6.9 cases per 100,000 in 1998 (based on five-year moving averages).

[Note: Separate graphs for males and females may not have the same y-axis scale.]

Figure 11-3. Male oropharyngeal cancer mortality by year

Average annual oral cavity cancer mortality rates by year among males, RI and US, 1989-1998**.*



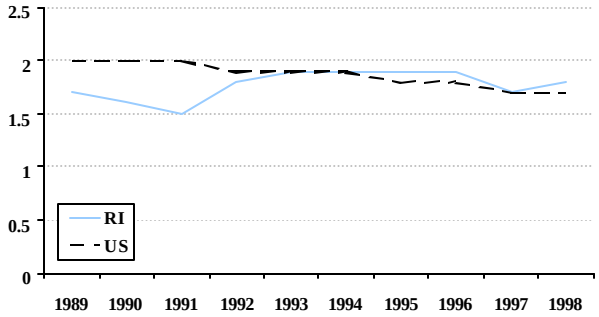
* Rates are age-adjusted to the year 2000 US standard population, expressed as deaths per 100,000 population.
** Rates are five-year moving averages.
Source: Office of Vital Records, HEALTH; SEER US Mortality 1969-2000 Data; calculated with *SEER*Stat*.

The age-adjusted mortality of invasive oropharyngeal cancer among RI males of all races declined strongly from 7.0 deaths per 100,000 in 1989 to 3.5 deaths per 100,000 in 1998, paralleled by a weaker decline among US males of all races (from 5.5 in 1989 to 4.4 in 1998; based on five-year moving averages). The disparity between the mortality rates for RI males and US males changed over the period of observation, with RI beginning the decade with higher-than-US mortality and ending the decade with lower-than-US mortality.

[Note: Separate graphs for males and females may not have the same y-axis scale.]

Figure 11-4. Female oropharyngeal cancer mortality by year

Average annual oral cavity cancer mortality rates by year among females, RI and US, 1987-2000**.*



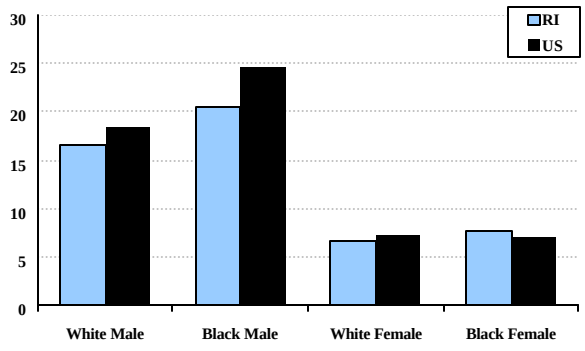
* Rates are age-adjusted to the year 2000 US standard population, expressed as deaths per 100,000 population.
** Rates are five-year moving averages.
Source: Office of Vital Records, HEALTH; SEER US Mortality 1969-2000 Data; calculated with *SEER*Stat*.

The age-adjusted mortality of invasive oropharyngeal cancer among RI females of all races showed little variation over the 1989-1998 period, averaging about 1.8 deaths per 100,000. The age-adjusted mortality of invasive oropharyngeal cancer among US females of all races declined from 2.0 in 1989 to 1.7 in 1998 (based on five-year moving averages). The disparity between the mortality rates for RI females and US females decreased over the period of observation, with US females as a whole experiencing the benefit.

[Note: Separate graphs for males and females may not have the same y-axis scale.]

Figure 11-5. Oropharyngeal cancer incidence by race and sex

Average annual invasive oropharyngeal cancer incidence rates by race and sex, RI and US, 1987-2000.*



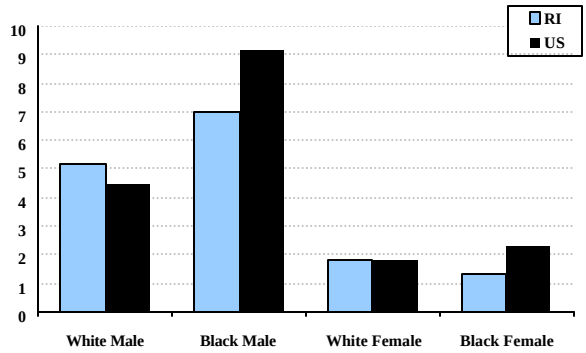
* Rates are age-adjusted to the year 2000 US standard population, expressed as cases per 100,000 population.
Source: RICR, HEALTH; SEER Public-Use 1973-2000 Data; calculated with *SEER*Stat*.

In 1987-2000, oropharyngeal cancer incidence rates in RI were higher among black males (21 cases per 100,000) than white males (17 cases per 100,000). US male rates were also higher among black males. Female oropharyngeal cancer incidence rates during this period were similar among whites and blacks in RI (7 cases per 100,000), and in the US.

[Note: RI incidence data for 2001 is currently available. US incidence data is only available through 2000. For comparability, the figure at left contains RI data through 2000.]

Figure 11-6. Oropharyngeal cancer mortality by race and sex

Average annual oropharyngeal cancer mortality rates by race and sex, RI and US, 1987-2000.*



* Rates are age-adjusted to the year 2000 US standard population, expressed as deaths per 100,000 population.
Source: Office of Vital Records, HEALTH; SEER US Mortality 1969-2000 Data; calculated with *SEER*Stat*.

In 1987-2000, oropharyngeal cancer mortality rates in RI were slightly higher among black males (7 deaths per 100,000) than white males (6 per 100,000). In the US, male rates were higher among black males. Female oropharyngeal cancer mortality rates during this period were 2 deaths per 100,000 among white females and 1 death per 100,000 among black females in RI. The US female rate was similar for both white and black females.

***Healthy People 2010* Targets**
Mortality: By 2010, reduce the oropharyngeal cancer death rate to 2.7 deaths per 100,000 population (age-adjusted to the year 2000 standard population of the United States; baseline = 3.0 deaths per 100,000 population in 1998).

Risk Factors

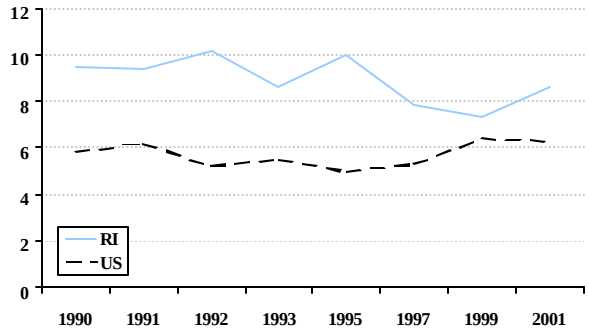
Major risk factors for oropharyngeal cancer are tobacco use in all forms and alcohol abuse, accounting for approximately 90% of oral cancer in the US. (Clinical) Increased risk has also been associated with occupational exposures, solar radiation, presence of premalignant lesions, and infection with human immunodeficiency virus (HIV). (Clinical)

Prevention

Oropharyngeal cancer is strongly related to chronic tobacco use and chronic "high-risk" drinking (14 or more alcoholic drinks per week for males and seven or more alcoholic drinks per week for women), and is therefore theoretically preventable by abstaining from tobacco and limiting alcohol consumption. (NIH) Clinicians should advise patients to discontinue use of all forms of tobacco and to limit consumption of alcohol. (Clinical)

Figure 11-7. Male chronic drinking by year

*Percent of male respondents 18 and older who report an average of two or more alcoholic drinks per day (14 or more drinks per week) by year, RI and US, 1990-2001**



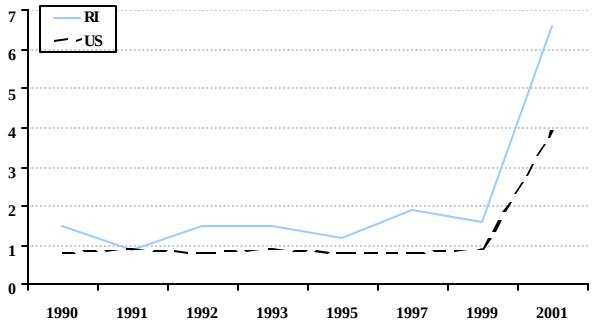
* Data not available for the following years: 1994, 1996, 1998, 2000.
Source: RI -BRFSS, HEALTH; BRFSS, CDC

From 1990 through 2001, the proportion of RI males who had reported an average of two or more alcoholic drinks per day varied between 7% and 10%, showing no definite trend, but substantially exceeding the US state median throughout the period.

[Note: Separate graphs for males and females may not have the same y-axis scale.]

Figure 11-8. Female chronic drinking by year

*Percent of female respondents 18 and older who report an average of two or more alcoholic drinks per day (7 or more drinks per week in 2001 – previously 14 or more drinks per week) by year, RI and US , 1990-2001**



* Data not available for the following years: 1994, 1996, 1998, 2000.
Source: RI -BRFSS, HEALTH; BRFSS, CDC

From 1990 through 1999, the proportion of RI females who had reported an average of two or more alcoholic drinks per day varied between 1% and 2%, showing no definite trend, but substantially exceeding the US state median throughout the period in all years but one. In 2001, the first year in which the Behavioral Risk Factor Surveillance System used the revised standard for chronic drinking among females (an average of one or more alcoholic drinks per day), the proportion of RI females who met or exceeded the standard (6.6 %) was almost double the US state median (3.9 %).

[Note: Separate graphs for males and females may not have the same y-axis scale.]

***Healthy People 2010* Targets**
Alcohol Use: By 2010, reduce the proportion of adults aged 21 years and over who exceed guidelines for low-risk drinking to 50 % of people who regularly use alcohol (baseline = 73 % in 1992). [Low risk drinking: Males – less than 14 drinks per week; females – less than 7 drinks per week.]

Please see **Lung Cancer** (section 9) for information on proportion of the population that are current smokers and for *Healthy People 2010* targets for tobacco use.

Screening

The effectiveness of screening for early oropharyngeal tumors is equivocal, (Clinical) although survival is clearly related to stage of disease at diagnosis. (Ries) The US Preventive Services Task Force last issued a recommendation on screening for oral cancer in 1996, at which time it stated: "There is insufficient evidence to recommend for or against routine screening of asymptomatic persons for oral cancer by primary care clinicians. Clinicians should remain alert

to signs and symptoms of oral cancer and premalignancy in persons who use tobacco or regularly use alcohol." (Clinical)

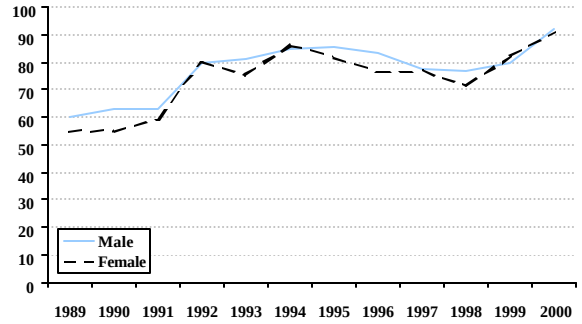
Treatment

Surgery is a treatment option for many oropharyngeal cancer patients. Surgery may be followed by radiation. Non-surgical options for such patients include chemotherapy (usually administered by injection of anticancer drug), radiation therapy, and clinical trials. (NCI summaries)

The percent of oropharyngeal cancer cases in RI ACOS-approved treatment programs and the percent staged with AJCC staging methodology is detailed below.

Figure 11-9. Oropharyngeal cancer in ACOS programs by year and sex

Percent of oropharyngeal cancer cases that were or are treated in ACOS approved cancer treatment programs by year and sex, RI, 1989-2000.

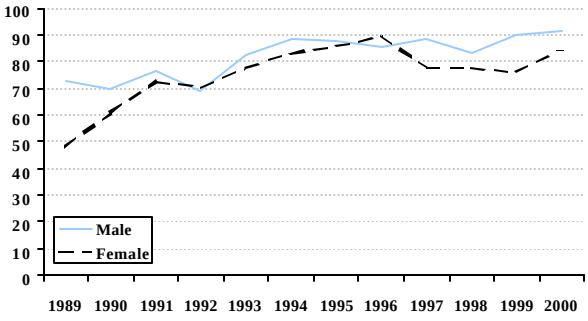


Source: RICR, HEALTH

The percent of cancer case reports in RI that were or are from ACOS approved hospital cancer treatment programs increased from 73% in 1989 to 92% in 2000 among males from 48% in 1989 to 85% in 2000 among females.

Figure 11-10. Oropharyngeal cancer with AJCC staging by year and sex

Percent of oropharyngeal cancer cases staged with AJCC staging methodology by year and sex, RI, 1989-2000.



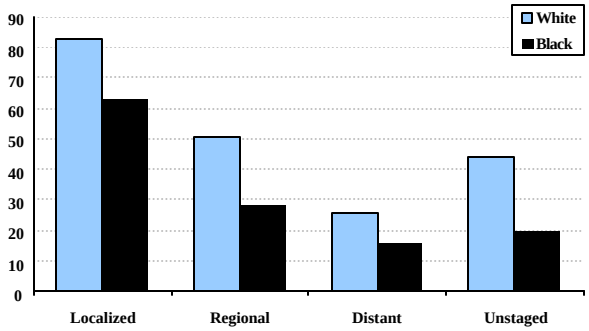
Source: RICR, HEALTH

The proportion of diagnosed oropharyngeal cancer cases staged using the AJCC system among males averaged 72% in 1989-1992, and then increased to 92% in 2000. Among females, this proportion increased from 48% in 1989 to 90% in 1996, then averaged 79% in 1997-2000.

Survival

Figure 11-11. Male oropharyngeal cancer survival rates by race and stage

Five year relative invasive oropharyngeal cancer survival rates by race and stage of disease at diagnosis among males, US, 1992-1999.*



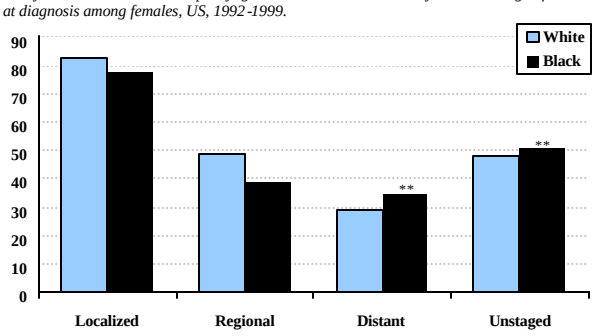
* Survival rates are relative rates expressed as percents.
Source: *SEER Cancer Statistics Review, 1975 -2000.*

Based on US data from 1992-1999, five-year relative survival rates for male oropharyngeal cancer are higher when diagnosed at earlier stages of disease, and are higher among white males than black males. Oropharyngeal cancers diagnosed while localized have a five-year survival rate of 83% among white males and 63% among black males. Cancers that are not diagnosed until a distant stage have a five-year survival rate of 26% among whites and 16% among blacks.

[Note: Separate graphs for males and females may not have the same y-axis scale.]

Figure 11-12. Female oropharyngeal cancer survival rates by race and stage

Five year relative invasive oropharyngeal cancer survival rates by race and stage of disease at diagnosis among females, US, 1992 -1999.*



* Survival rates are relative rates expressed as percents.
** The standard error of the survival rate is between 5 and 10 percentage points.
Source: *SEER Cancer Statistics Review, 1975 -2000.*

Based on US data from 1992-1999, five-year relative survival rates for female oropharyngeal cancer are higher when diagnosed at earlier stages of disease. Oropharyngeal cancers diagnosed while localized have a survival rate of 83% among white females and 78% among black females. Cancers that are not diagnosed until a distant stage have a survival rate of 29% among whites and 35% among blacks. Five-year survival rates are higher among whites than blacks for oropharyngeal cancers diagnosed while localized or regional, and higher among blacks for those diagnosed while distant or unstaged.

[Note: Separate graphs for males and females may not have the same y-axis scale.]

Discussion

Summary of Burden

Although the number of new oropharyngeal tumors diagnosed in Rhode Island is relatively small, their burden is significant because they are preventable, because rates of risk behaviors in Rhode Island are higher than national averages, and because oropharyngeal tumors diagnosed at later stages have lower survival rates.

The annual averages of 114 newly diagnosed oropharyngeal cancer cases and 29 deaths are theoretically preventable by avoiding tobacco use and limiting alcohol consumption. Regular oral cancer examinations can detect oral cancers at an earlier, more treatable stage.

Among Rhode Island men, mortality from oropharyngeal cancer was halved in the 1990's.

Mortality decreased from 7.0 to 3.5 deaths per 100,000 men over the period 1987-2000. Rhode Island has already reached the 2010 goal for a mortality decline from oropharyngeal cancer (when recent mortality rates for men and women are averaged), but given the state's average (for US) rates of tobacco use, and its above-average rates of chronic drinking, whether we will be able to sustain this decline remains a question.

Relative Burden

Among Rhode Island men, oropharyngeal cancer mortality was higher than the national rate in the early 1990's and was lower than the national rate in the late 1990's.

Disparities

In Rhode Island, the burden of oropharyngeal cancer is higher among men than women.

Incidence and mortality from oropharyngeal cancer were higher among men than women in the 1990's. However, the substantial decrease in mortality that occurred among RI men narrowed the gender gap in the late 1990's.

In Rhode Island, the burden of oropharyngeal cancer is higher among black men than white men.

In Rhode Island, both incidence and mortality were higher among black men than white men in the 1990's. At the national level, the racial disparity in mortality was more pronounced.

Status of Control Strategies

The burden of oropharyngeal cancer may be lessened by decreasing the proportion of persons who smoke, by decreasing the proportion of people who consume alcohol excessively, by promoting regular oral cancer examinations, and by assuring state-of-the-art treatment for all oropharyngeal cancer patients. Oral exams are highly recommended for persons who regularly use tobacco or alcohol.

In the 1990's, the proportion of chronic drinkers was higher in Rhode Island than in the nation as a whole.

Given Rhode Island's high rates of chronic drinking, especially among men, it is questionable whether the decline in male oropharyngeal cancer mortality will be sustained.

By the year 2000, 9 out of 10 oropharyngeal cancer case reports in Rhode Island were from American College of Surgeons (ACOS) approved hospitals.

By the year 2000, 9 out of 10 oropharyngeal tumors in Rhode Island were staged with American Joint Committee on Cancer (AJCC) methodology.

Cancer Control Priorities for 2004

Reduce the burden of oropharyngeal cancer by increasing the proportion of people who do not use tobacco, who avoid excessive alcohol consumption, and who follow recommended guidelines for screening.

Increase the proportion of Rhode Islanders who do not use tobacco and who avoid excessive alcohol consumption by (a) preventing tobacco use among youth, (b) promoting tobacco cessation, (b) promoting limited alcohol consumption, and (c) among high-risk populations, promoting regular oral exams.

Reduce the burden of oropharyngeal cancer by increasing the proportion of oropharyngeal cancer patients who receive state-of-the-art treatment.

Increase surveillance of tobacco and alcohol consumption behaviors.

Increase surveillance of tobacco and alcohol consumption behaviors, such as use of spit tobacco. Conduct a careful analysis of risk behaviors in Rhode Island.

Begin to eliminate disparities by identifying reasons for disparities in relative mortality.

Identify reasons for gender and race disparities in mortality from oropharyngeal cancer, using data from the Rhode Island Cancer Registry, the Behavioral Risk Factor Surveillance System, the Rhode Island Health Interview Survey, and death certificate data.